



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Pat nt and Trad mark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/662,704 09/15/00 KAYA

S 197261US2

EXAMINER

022850 MM91/0718  
OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT  
FOURTH FLOOR  
1755 JEFFERSON DAVIS HIGHWAY  
ARLINGTON VA 22202

HARMON, C  
ART UNIT

PAPER NUMBER

2881  
DATE MAILED:

07/18/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/662,704

Applicant(s)

KAYA ET AL.

Examiner

Cecil B. Harmon

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**Semiconductor Device**

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims [1 -17] are rejected under 35 U.S.C. 102(b) as being anticipated by Hashimoto et al. The reference discloses in **Fig. 1**, a semiconductor **1** with multi-layer film **30** formed by laminating **col. 5, lines 10-17** optical confinement layers **3 and 5** and active layers **Fig. 7, 4 and 5** so as to dispose each of the active layers **4 and 5** between the optical confinement layers **3 and 5**, such that one of the opposite end **Fig. 7, 4f** perpendicular to the junction planes **Fig. 6, L1, L9** of the individual layers **Fig. 1, 30** in the semiconductor multi-layer film **30** is coated with a low reflection film **20**; the other ends is coated with a high reflection film **Fig. 1, 100b**, where the low reflection film **20** contains a film which is composed of  $Al_2O_3$  **col. 4, 19-33** and has a resistivity of  $10^{12} \Omega m$  or more **see col. 1, lines 55-50**.


3. In regards claims [2 and 10], Hashimoto et al. disclose in **Fig. 1** that the low reflection film **20** is formed from a single layer **100f**.
4. In regards to claims 3, 11, Hashimoto et al. disclose in **Fig. 1**, that the low reflection film **20** is formed from a plurality of layers **30**.
5. In regards to claims [ 4,5,7,8,12,13,15 and16] Hashimoto et al. disclose in **Fig. 1** that the plurality of layers **30** which are composed of AL<sub>2</sub>O<sub>3</sub> **col. 4, lines 19-33** and a film containing Si **32** which has a refractive index higher than that of the AL<sub>2</sub>O<sub>3</sub> **see col. 4, lines 19-33**.
6. In regards to claim [6], See claim 1 above.
7. In regards to claims [9 and 14], Hashimoto et al. disclose in **Fig. 1**, that the low reflection film **20** contains a film composed of AL<sub>2</sub>O<sub>3</sub> **col. 4, lines 19-33** with a stoichiometric ratio composition **see col. 2, lines 30 –39**.
8. In regards to claim 17, Hashimoto et al. disclose that the AL<sub>2</sub>O<sub>3</sub> film **col. 4, lines 19-33** is deposited by an electron cyclotron resonance plasma sputtering process, electron beam evaporation process, or an electron beam sputtering process **see col. 8, lines 20-23**.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cecil B. Harmon whose telephone number is 703-306-0247. The examiner can normally be reached on 8am-4pm.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa M. Arroyo can be reached on 703-308-4782. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-0956 for After Final communications.

11. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
TERESA M. ARROYO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

CBH  
July 15, 2001